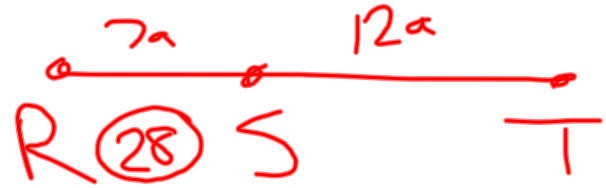

28.

$7a = 28$

$a = 4$

$ST = 48$

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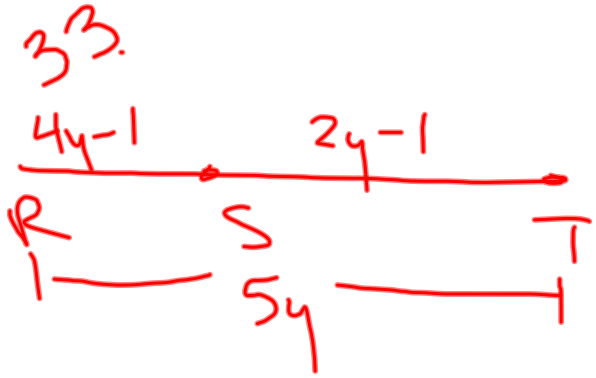
33.



$4y - 1 + 2y - 1 = 5y$

$6y - 2 = 5y$

$-2 = -y$

$2 = y$

$ST = 3$

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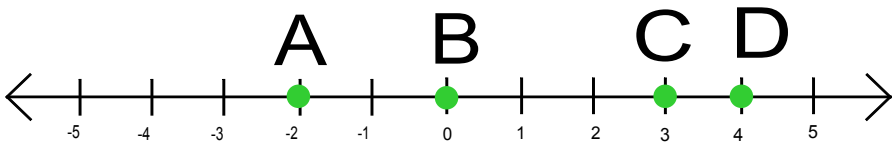
1-3 Distance and Midpoints



$AB = 2 = |-2-0| = 2$

$AD = 6$

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The Distance Formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$2 - -2$

EX: A(-2, -3) B(2, 4)

$$AB = \sqrt{(-2-2)^2 + (-3-4)^2}$$

$$16 + 49$$

$$AB = \sqrt{65}$$

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EX: C(6, 3) D(0, 0)

$CD = \sqrt{(6-0)^2 + (3-0)^2}$

$\sqrt{36 + 9}$

$\sqrt{45}$

$CD = 3\sqrt{5}$

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Find MN and OP

Do

1. M(-5, -2) N(1, 4)
2. O(-1, -1) P(20, 6)

$\sqrt{72}$

$6\sqrt{2}$

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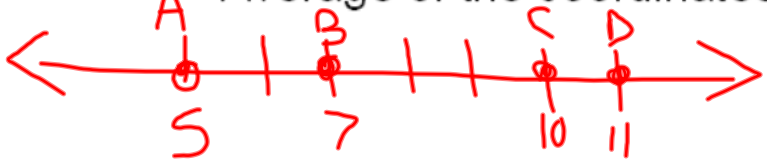
Midpoint of a Segment

Midpoint—point halfway between endpoints of a segment

--Average of the coordinates



$\overline{AB}$ midpoint 6 $\frac{5+7}{2}=6$

$\overline{AD}$ midpoint 8 $\frac{5+11}{2}=8$

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The Midpoint Formula

$$M\left(\frac{x_1+x_2}{2},\frac{y_1+y_2}{2}\right)$$

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Find the midpoint

Do

1. (4, -6) (-3, 2)
2. (-4, -3) (8, 5)

#1 $M\left(\frac{4+-3}{2}, \frac{-6+2}{2}\right)$

$M\left(\frac{1}{2}, -2\right)$

#2 (2, 1)

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M is the midpoint of $\overline{UD}$

$UM = MD$

$\overline{UM} \cong \overline{MD}$

Suppose:
U(5, 2)
M(3, -1)
D(, x) y
(1, -4)

$\frac{5+x}{2} = 3$

$5+x = 6$

$x = 1$

$\frac{2+y}{2} = -1$

$2+y = -2$

$y = -4$

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Do

1. U(-5, -3) M(-6, 4) Find D

2. M(-3, 3) D(-14, 12) Find U

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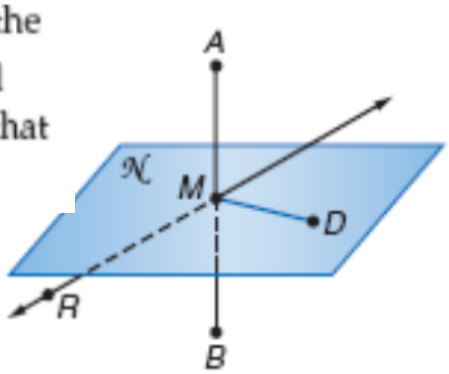
Segment Bisector—segment, line, plane that intersects a segment at its midpoint

In the figure at the right, M is the midpoint of $\overline{AB}$. Plane $\mathcal{N}$, $\overline{MD}$, $\overleftrightarrow{RM}$, and point M are all bisectors of $\overline{AB}$. We say that they *bisect* $\overline{AB}$.



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HW

p25-26

13-39odd, 43, 45

(not 19,21)

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